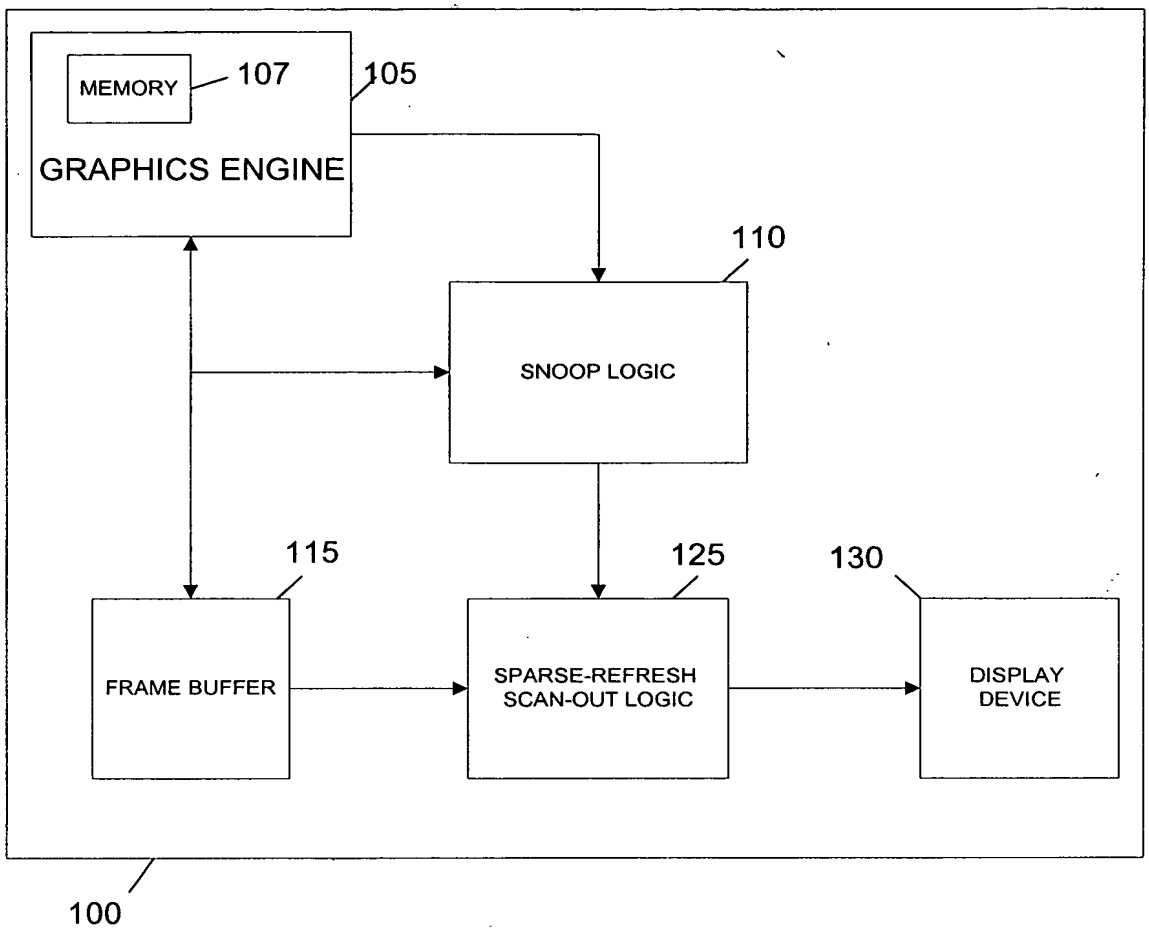


FIG. 1

Express Mail Label No. EV 340 045 945 US

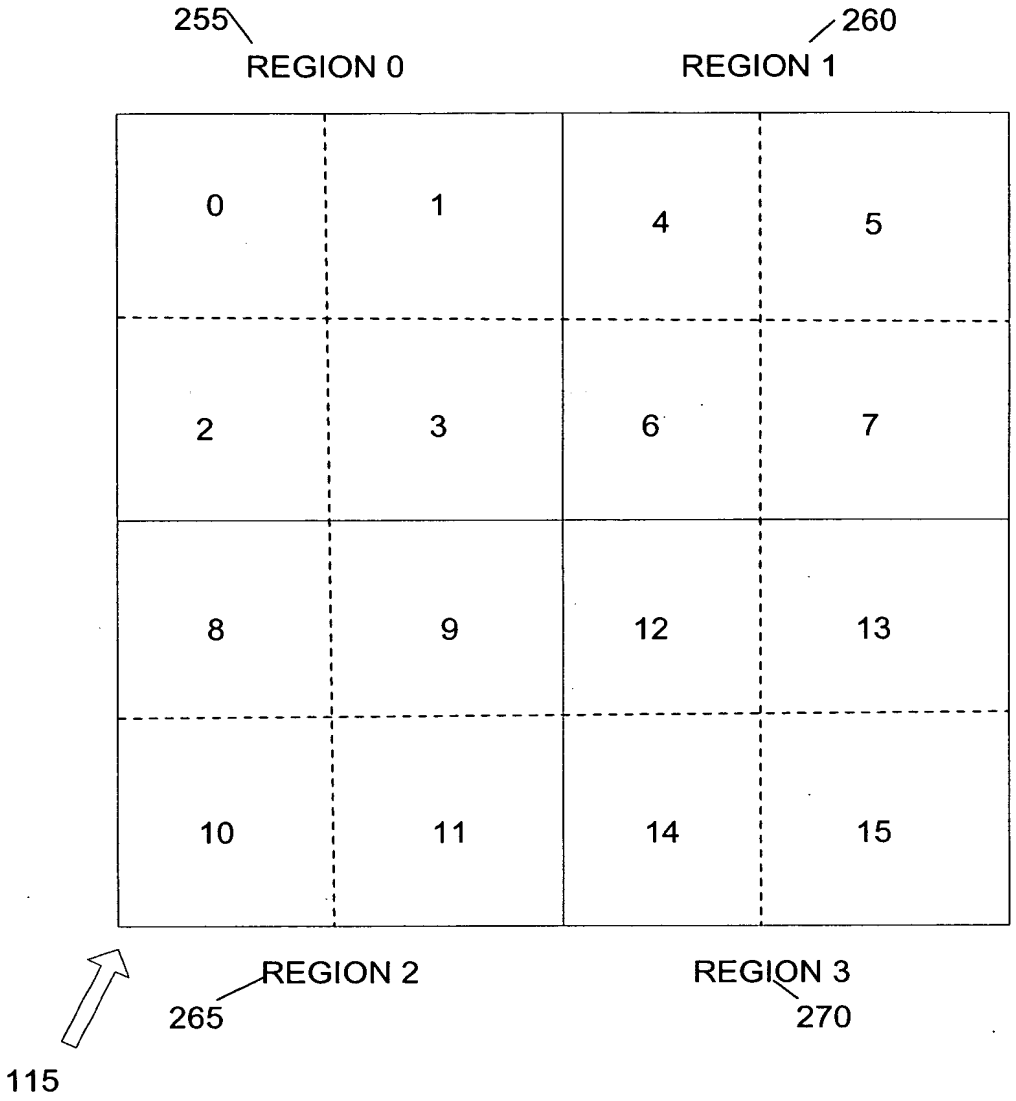

255
REGION 0
260
REGION 1
0
1
4
5
2
3
6
7
8
9
12
13
10
11
14
15
REGION 2
265
REGION 3
270
115

FIG. 2

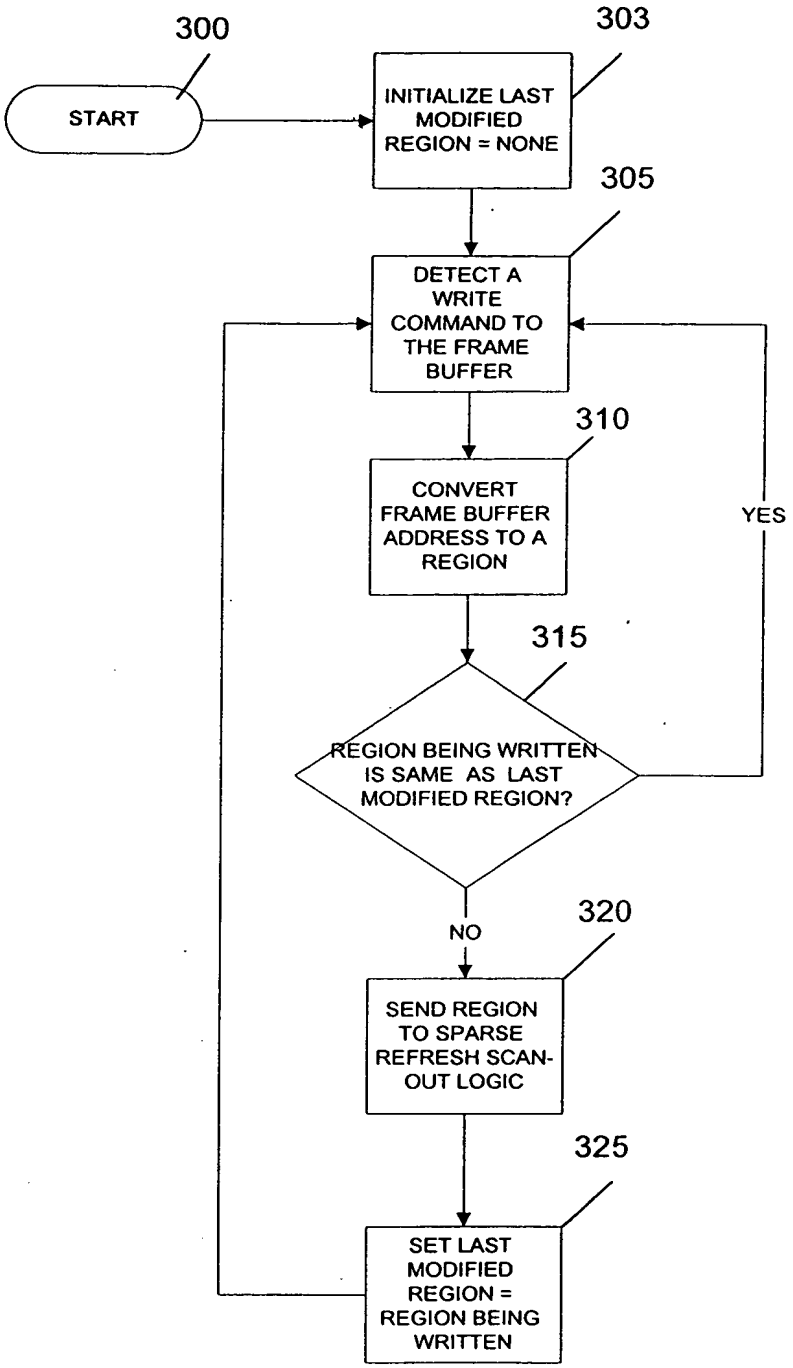

300
START
303
INITIALIZE LAST MODIFIED REGION = NONE
305
DETECT A WRITE COMMAND TO THE FRAME BUFFER
310
CONVERT FRAME BUFFER ADDRESS TO A REGION
315
REGION BEING WRITTEN IS SAME AS LAST MODIFIED REGION?
YES
NO
320
SEND REGION TO SPARSE REFRESH SCAN-OUT LOGIC
325
SET LAST MODIFIED REGION = REGION BEING WRITTEN

Fig. 3

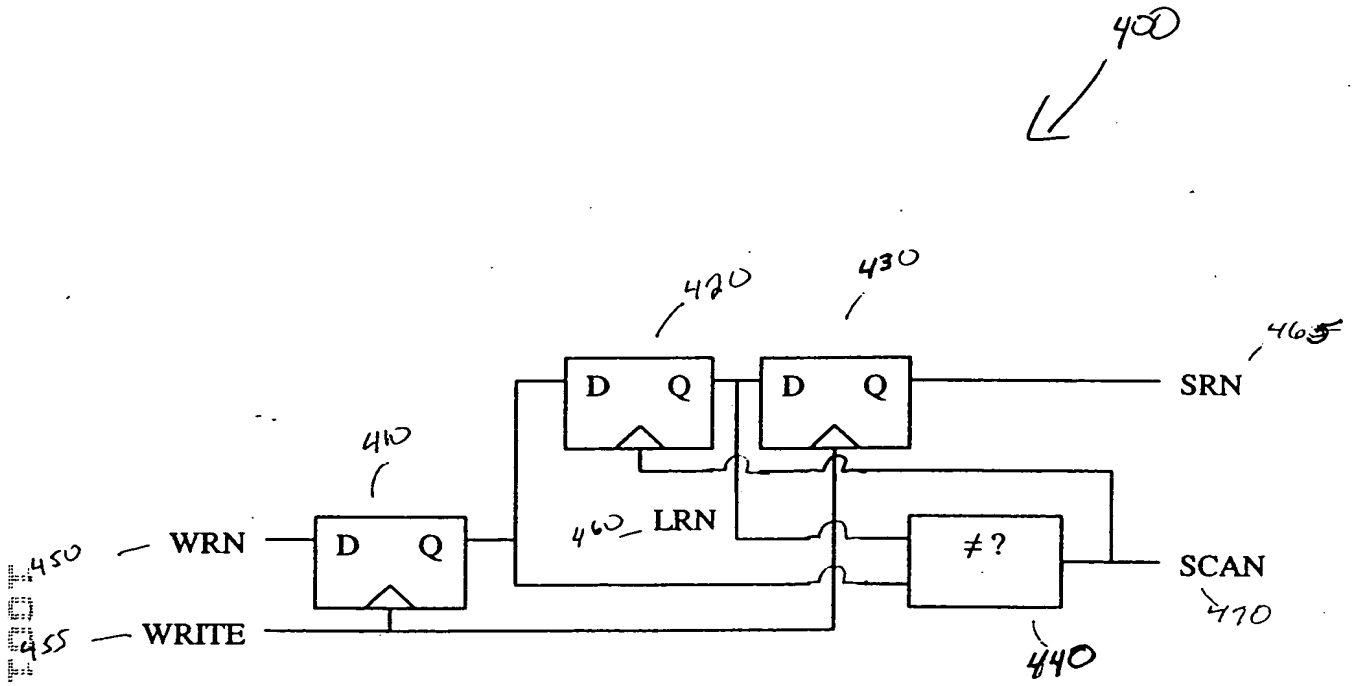
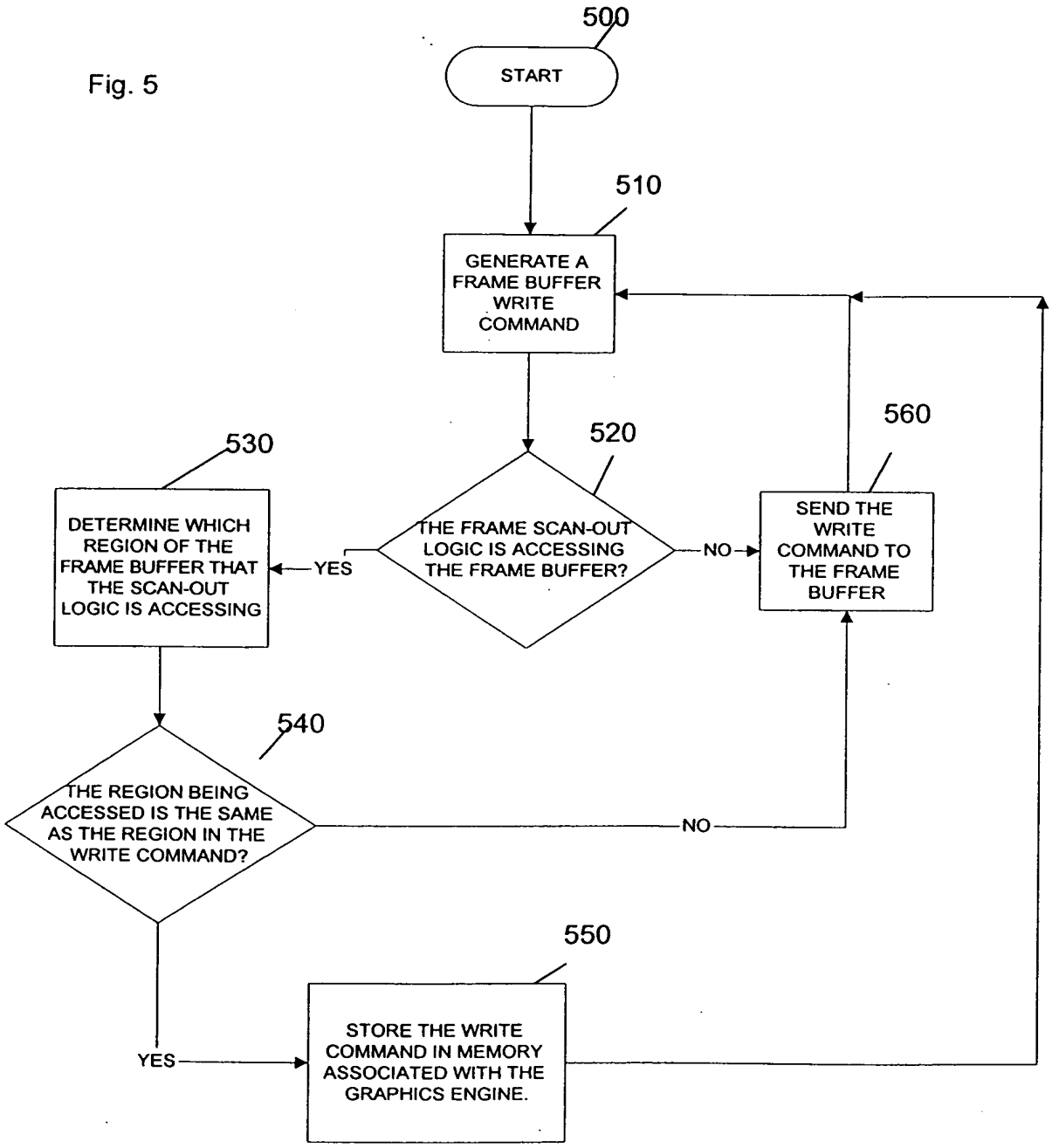

400
420
430
465
D Q
D Q
SRN
410
460 LRN
450 WRN
D Q
≠?
SCAN
455 WRITE
470
440

Fig. 4

Fig. 5


500
START
510
GENERATE A FRAME BUFFER WRITE COMMAND
520
THE FRAME SCAN-OUT LOGIC IS ACCESSING THE FRAME BUFFER?
YES
NO
530
DETERMINE WHICH REGION OF THE FRAME BUFFER THAT THE SCAN-OUT LOGIC IS ACCESSING
560
SEND THE WRITE COMMAND TO THE FRAME BUFFER
540
THE REGION BEING ACCESSED IS THE SAME AS THE REGION IN THE WRITE COMMAND?
NO
YES
550
STORE THE WRITE COMMAND IN MEMORY ASSOCIATED WITH THE GRAPHICS ENGINE.

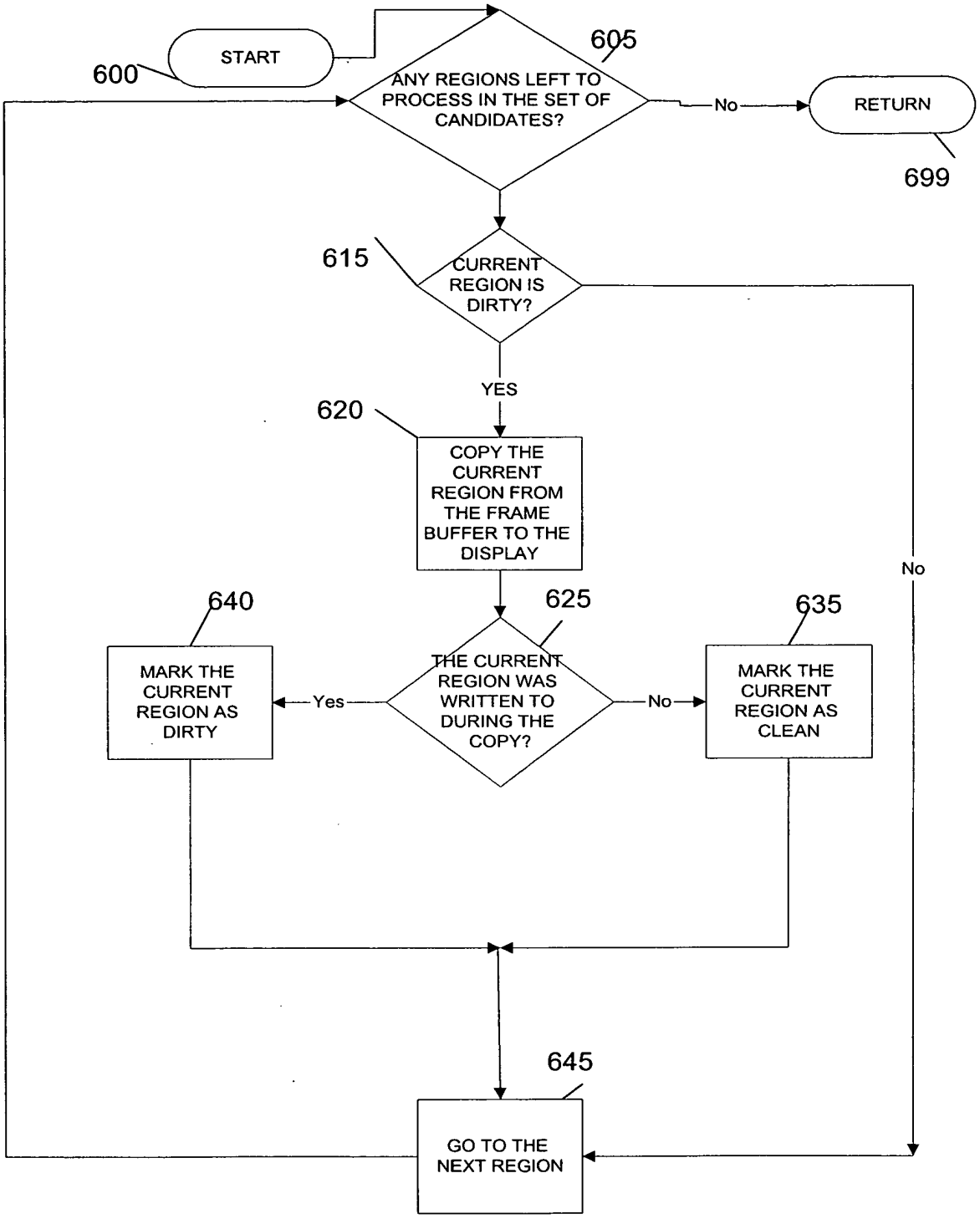

START
600
ANY REGIONS LEFT TO PROCESS IN THE SET OF CANDIDATES?
605
No
RETURN
699
CURRENT REGION IS DIRTY?
615
YES
620
COPY THE CURRENT REGION FROM THE FRAME BUFFER TO THE DISPLAY
No
THE CURRENT REGION WAS WRITTEN TO DURING THE COPY?
625
Yes
No
MARK THE CURRENT REGION AS DIRTY
640
MARK THE CURRENT REGION AS CLEAN
635
GO TO THE NEXT REGION
645

Fig. 6